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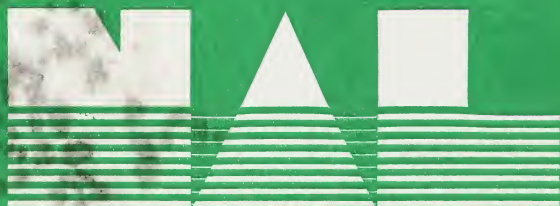
5100-Fire  
July 2005  
0551-2814-MTDC



# Incident Sign Installation Guide

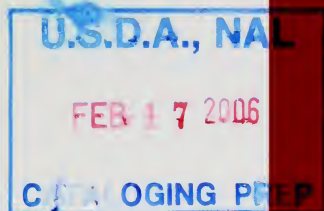


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# Incident Sign Installation Guide



## Thanks to:

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*John Bell*  
*Mike Noland*  
*Joe Knudsen*  
*Carl Cain*  
*Jeff Scussel*

*FHWA*  
*Hari Kalla*  
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**Technology and Development Program**  
**Missoula, MT**

**5E52P30—Incident Sign Installation Guide**

**July 2005**

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Some photographs in this guide were digitally altered to remove distracting features.



# Standards and Principles

## *Forest Service Safety Creed*

*“No job is so important that we cannot take the time to work safely.”*

The *Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)* is the national standard for signs and traffic control devices for roads. The regulations in 23 CFR 655.603 require that the MUTCD be followed on all Federal, State and local roads open to public travel. The *Sign and Poster Guidelines for the Forest Service (EM 7100–15)* contain additional requirements for signs and traffic control devices used on National Forest System roads.

## Temporary Traffic Control

Temporary traffic control is needed when incidents, such as traffic accidents, wildland fires, floods, and hazardous material spills, take place on or adjacent to a road, interrupting the normal flow of traffic.

## Temporary Traffic Control Zones

Temporary traffic control zones allow traffic to flow safely through incidents while reasonably protecting motorists, incident responders, vehicles, and equipment. Zones also are established when necessary to restrict use of road systems to incident management personnel. Availability of message signs, warning lights, flags, barricades, and cones may be used to enhance the visibility of traffic control zones.

## Incident Sign Standards

- Design, locate, install, and maintain signs in accordance with MUTCD and EM 7100–15 requirements.
- Coordinate with other public road authorities as soon as possible when incidents affect roads under their jurisdiction.
- Use professionally made signs made from fluorescent pink or orange retroreflective sheeting.
- Monitor and maintain signs and devices for the duration of the incident.
- Remove or cover signs promptly when they do not apply and when they are no longer needed.
- Use retroreflective pink signs when an incident occurs on or near a road that has orange construction signs.

## Construction or Nonstandard Signs

- Use such signs only in an emergency when standard signs are not available.
- Replace nonstandard incident signs as soon as possible.

## Flagging and Traffic Control

- Flaggers must be properly trained. A current State certification is acceptable evidence of training.
- Flaggers and persons staffing traffic control points must wear high-visibility clothing meeting MUTCD requirements. **Nomex firefighting clothing does not meet these requirements.** Clothing worn for night operations must clearly show the flagger or traffic control staff person to be a person.

# Traffic Control Devices

Traffic control devices are signs, signals, markings, and other devices used to regulate, warn, or guide traffic. These devices are placed on or adjacent to a road by authority of the agency having jurisdiction over the road.

## Regulatory Signs

- Inform persons using the road of traffic laws, regulations, and legal requirements.
- Are enforced by law as authorized by the agency with jurisdiction over the road.



## Warning Signs

- Warn drivers of unexpected conditions or situations on or adjacent to a road.
- Indicate the need for caution by the vehicle operator.
- May call for reduced speed or an unexpected vehicle maneuver.
- Are diamond shaped.
- Must be fluorescent pink or orange, made of Type 3 (high-intensity) sheeting.



## Guide Signs

- Inform drivers of important sites such as incident bases, helibases, and staging areas.
- Allow time for the driver to make appropriate decisions before reaching an intersection.
- Are rectangular shaped.





# Typical Barricade Installations

Use Type III barricades (three rails) to close or partially close roads for temporary traffic control activities related to incident management. (See page 20 for proper barricade installation for road closures.)

Use Type I (one rail) and Type II (two rails) barricades where traffic flow is maintained through the temporary traffic control zone.

Stripes on barricade rails shall be alternating orange and white retroreflective stripes. Stripes on the rails should point downward toward the direction that drivers are to pass.

Standard traffic control signs are often needed on Type III barricades. Typical signs mounted on these barricades include: ROAD CLOSED, ROAD CLOSED TO THRU TRAFFIC, or LOCAL FIRE TRAFFIC ONLY.



Mount signs on the barricade at least 1 foot above the road. Signs mounted on Type III barricades should not cover more than 50 percent of the top two rails or 33 percent of the total area of the three rails.

Do not place signs or posters other than standard traffic or incident signs on barricades.

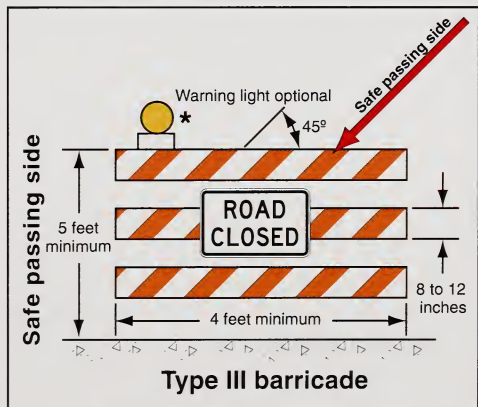
All sides of barricades facing traffic should have a minimum of 270 square inches of retroreflective area showing. Barricades should be visible from both directions because incident and permitted local traffic may be exiting the area from the other direction.

Use only crashworthy barricades.

Anchor barricades that may overturn in the wind with appropriate ballast, such as sandbags or water jugs.

Do not place ballast on top of any striped rail. Do not use objects that would not deform in a collision, such as rocks or concrete, as ballast on a barricade.

Homemade barriers, such as sawhorses and wooden posts, do not meet the required standards.



Barricade is placed in the lane where traffic is to stop. Barricade stripes point to the direction traffic is to pass.

# Typical Installations

## Methods of Mounting Signs

If the duration or scope of an incident is unknown and may change rapidly, approved portable devices may be used. Portable supports must be crashworthy. Several methods of mounting portable signs are shown on page 5. Additional information is available in the MUTCD, chapter 6F—Temporary Traffic Control Devices.

Signs may be mounted on temporary sign stands, U-channel posts, existing utility poles, delineator posts, or other appropriate posts. Rollup signs are easily mounted on portable sign stands or on existing delineator posts.

If no other option exists, incident signs may be installed on the same post as similar existing signs if they do not compromise the message of the existing sign.

### **Do not cover existing regulatory or warning signs with incident signs.**

If existing signs conflict with incident signs, or if they do not apply during the management of the incident, cover those signs to prevent confusion.

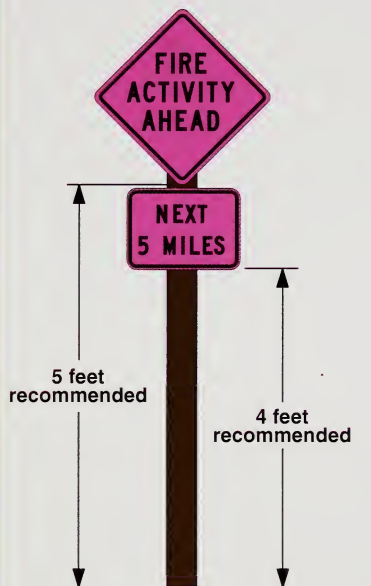
Signs mounted on barricades or other portable supports must be at least 1 foot above the traveled way.

Locate incident signs on the right-hand side of the road as close to the standard location of traffic signs as is practical. Where special emphasis is needed or where signs may be blocked by traffic, place signs on both sides of the roadway.

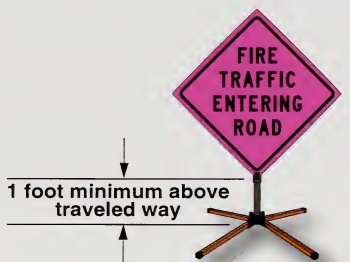
Consider the following guidelines when selecting sign placement locations:

- Place signs where they provide adequate time for proper viewer response, considering factors such as speed, road conditions, intermediate intersections, and road geometry (see pages 6 and 7).
- Select locations that minimize viewing obstructions. Avoid locations:
  - \* Such as dips in the roadway or trail
  - \* Just beyond the crest of a hill
  - \* Where a sign could be obscured by other signs
  - \* Where the sign may interfere with the normal operation of the facility
  - \* Where drivers have an increased need to focus on the roadway
- Erect signs individually on separate mountings except where one sign supplements another, such as a warning sign with an advisory speed plaque, or where incident name and destination signs are grouped.
- Relocate signs if traffic congestion extends past the original location of the signs.

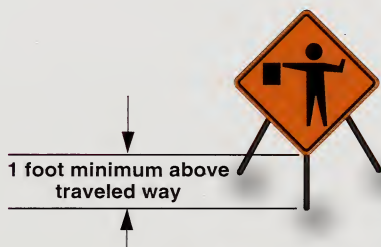
## Mounting Methods



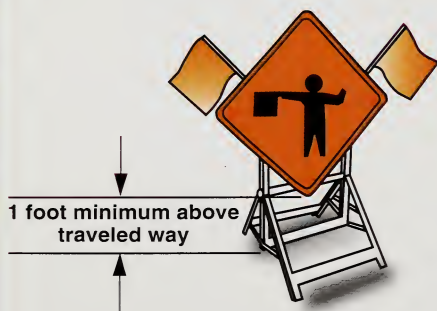
Post



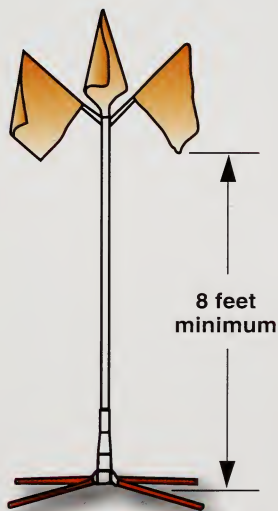
Retractable sign stand



Tripod



Barricade mounting



High-level warning device

# Spacing Advance Warning Signs for Temporary Traffic Control

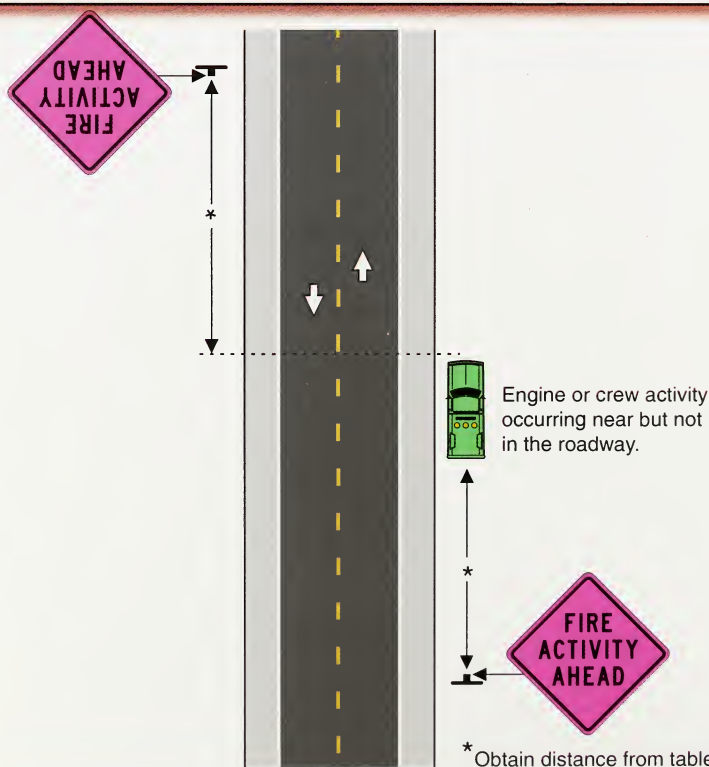
The distance from the first sign to the start of the incident area should be long enough to give motorists enough time to respond to the conditions.

Use the following table to determine the distance for spacing **Warning** signs for activity that is not in or blocking the roadway.

**Table 1—Spacing advance warning signs for temporary traffic control.**

Speed limit or prevailing approach speed (miles per hour)	Distance from incident area to the first sign and between subsequent signs (feet)
25 or less	100
30 to 45	350
Over 45	500

*For expressways and freeways, contact the State Department of Transportation.*





# Advance Placement of Guide Signs at Intersections

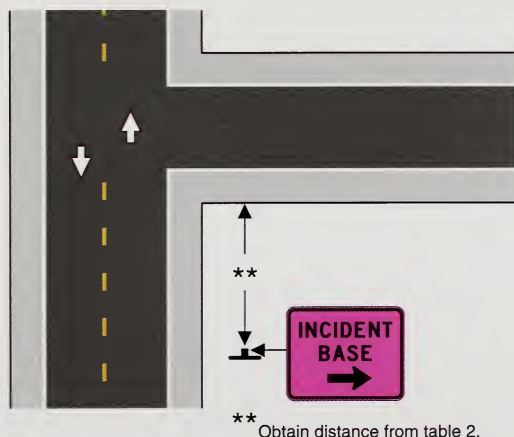
The distance from the first sign to the start of the incident area should be long enough to give motorists enough time to respond to the conditions.

Use the following table to determine the spacing for *Guide* signs.

Make sure you place guide signs far enough in front of the point where vehicles should begin maneuvering by using the distances in table 2.

**Table 2—Advance placement of guide signs at intersections.**

Speed limit or prevailing approach speed (miles per hour)	Distance from the intersection (feet)
Less than 15	At or near intersection
15 to 25	100
30 to 40	100 to 200
Over 45	200 minimum
<i>For expressways and freeways, contact the State Department of Transportation.</i>	



# Incident Management Activity at Intersections

## Application Notes

Install a warning and guide sign at each approach to the intersection. The warning sign (sign 1) attracts the driver's attention. It is the most critical sign and always takes precedence over the guide sign (sign 2).

Use the FIRE TRAFFIC ENTERING ROAD warning sign to warn approaching motorists that incident traffic is entering and exiting at the intersection.

Use of the advisory speed plaque is optional. Its use requires approval by the State Department of Transportation if it is placed on State roads.

### Don't use advisory speed plaques by themselves.

If enforceable or advisory speed limits are necessary, work with the appropriate road agency that has jurisdiction.

Use guide signs at critical intersections to direct incident management traffic to destinations such as:

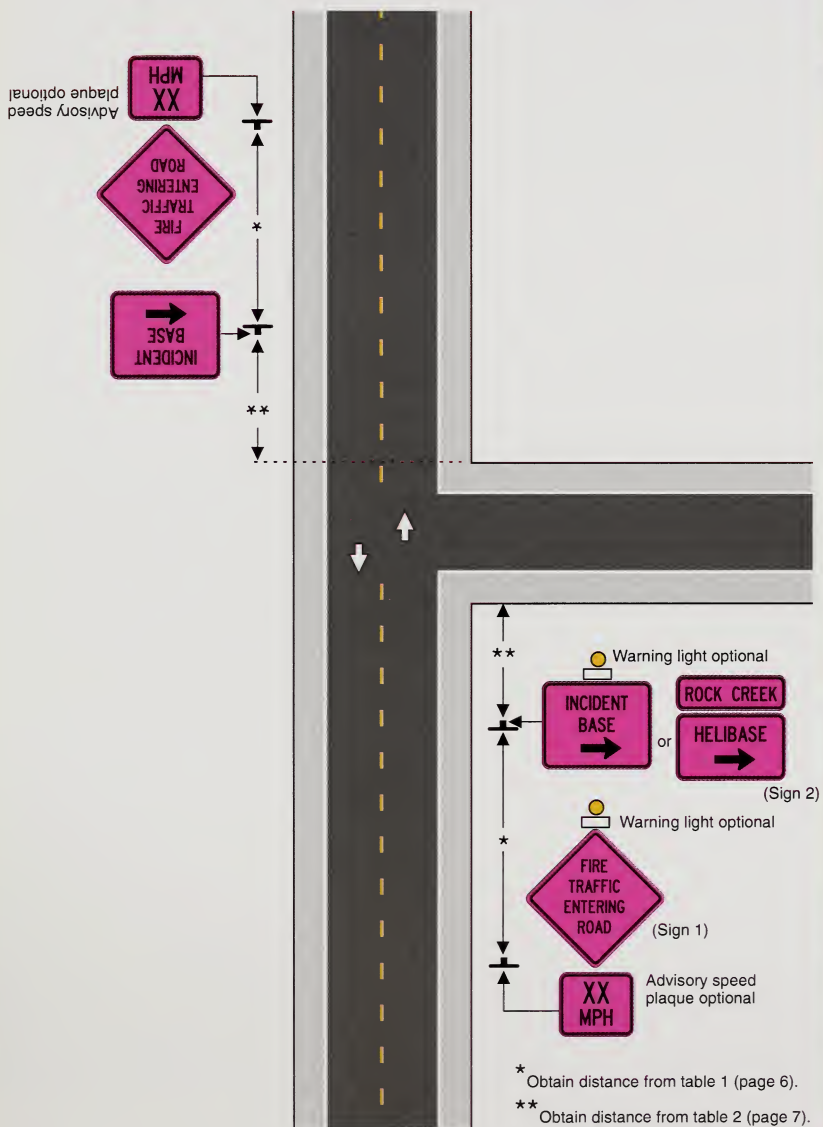
- Incident bases
- Helibases
- Staging areas
- Helicopter bucket dip sites
- Washing stations

When several incidents are in the same area, a nameplate may help persons locate the right incident. The name of the incident should be on a separate sign mounted on top of the guide sign.





## Incident Management Activity at Intersections



# Approaching and Ending Fire Activity Zones

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## Application Notes

Incident management activities may occur throughout an incident zone over a long section of road.

Use the FIRE ACTIVITY AHEAD sign with a mileage plate indicating the length of the traffic control zone as the first sign in a series of incident management signs.

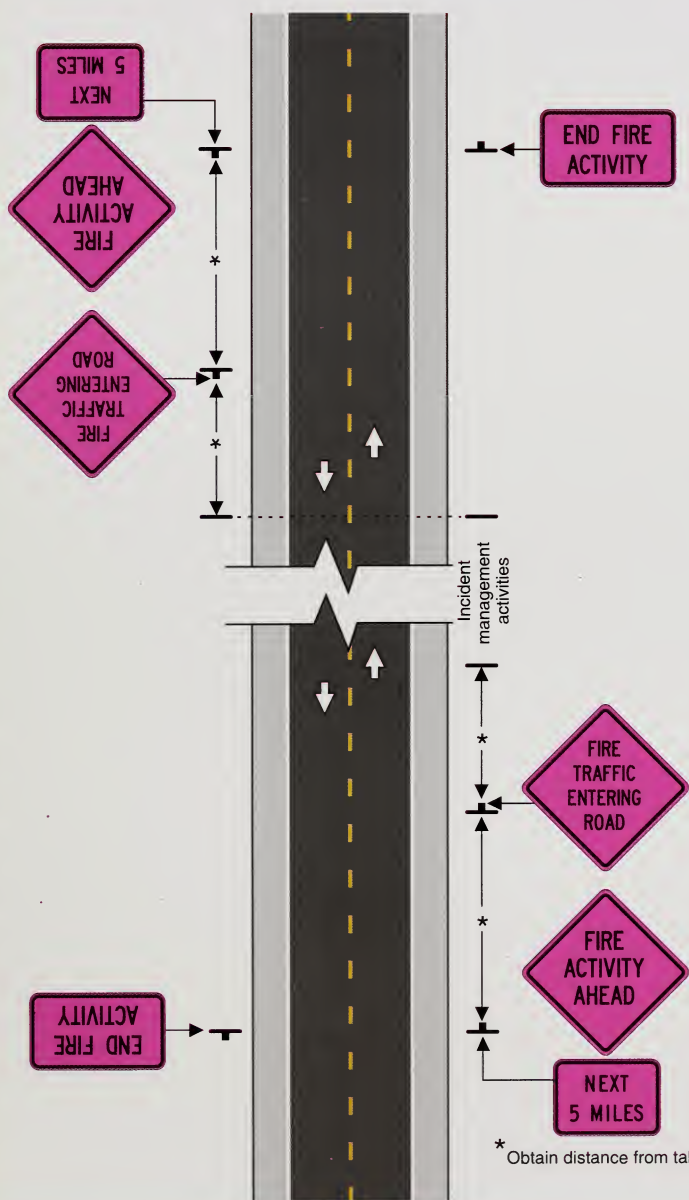
Use the END FIRE ACTIVITY sign to let drivers know that they may resume normal driving. Place the END FIRE ACTIVITY sign on the opposite side of the road from the FIRE ACTIVITY AHEAD sign warning motorists coming from the other direction.

If the incident activity occurs over more than 5 miles of road, install additional FIRE ACTIVITY AHEAD signs with the mileage plate at least every 5 miles.

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## Approaching and Ending Fire Activity Zones



# Initial Attack Engine or Crew Operations Along a Roadway

## Application Notes

The FIRE ACTIVITY AHEAD sign may be omitted if the incident vehicle or activity is behind a barrier, more than 24 inches behind a curb, or more than 15 feet from the edge of any roadway.

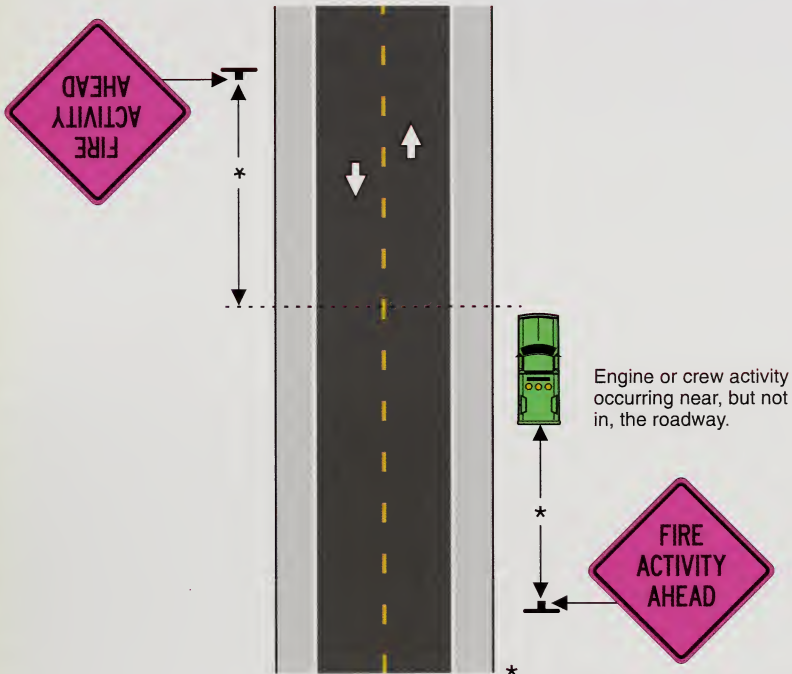
For operations lasting less than 30 minutes, signs are not required if the incident vehicle uses activated high-intensity rotating, flashing, oscillating, or strobe lights.

Hazard-warning signals on vehicles may be used to supplement—but not replace—high-intensity rotating, flashing, oscillating, or strobe lights.





## Initial Attack Engine or Crew Operations Along a Roadway



\* Obtain distance from table 1 (page 6).

# Flagging Operations To Stop Traffic for Helicopter Activities

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## Application Notes

Intermittent flagging operations may be needed to stop traffic when helicopter operations affect road users. Use the BE PREPARED TO STOP and the flagger symbol signs during all flagging operations. Remove, cover, or turn signs face down when traffic is not being flagged.

The advance warning sign FIRE ACTIVITY AHEAD should be visible at all times, even when flagging operations are suspended.

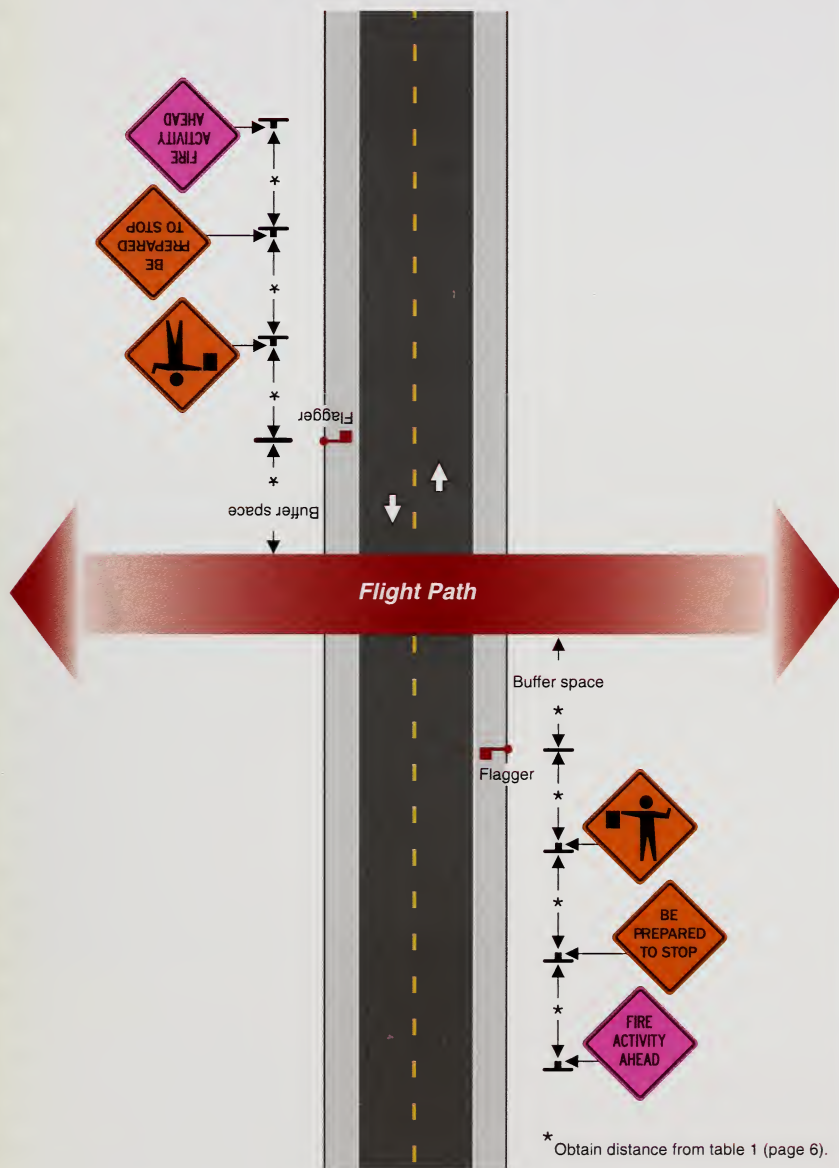
See pages 22 through 24 for flagger requirements.

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## Flagging Operations To Stop Traffic for Helicopter Activities



# Intermittent Flagging Operations at Intersections

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## Application Notes

Intermittent flagging operations may occur only during shift changes or at other critical times of the incident operation. Use the BE PREPARED TO STOP and the flagger symbol signs during all flagging operations. Remove, cover, or turn signs face down when traffic is not being flagged.

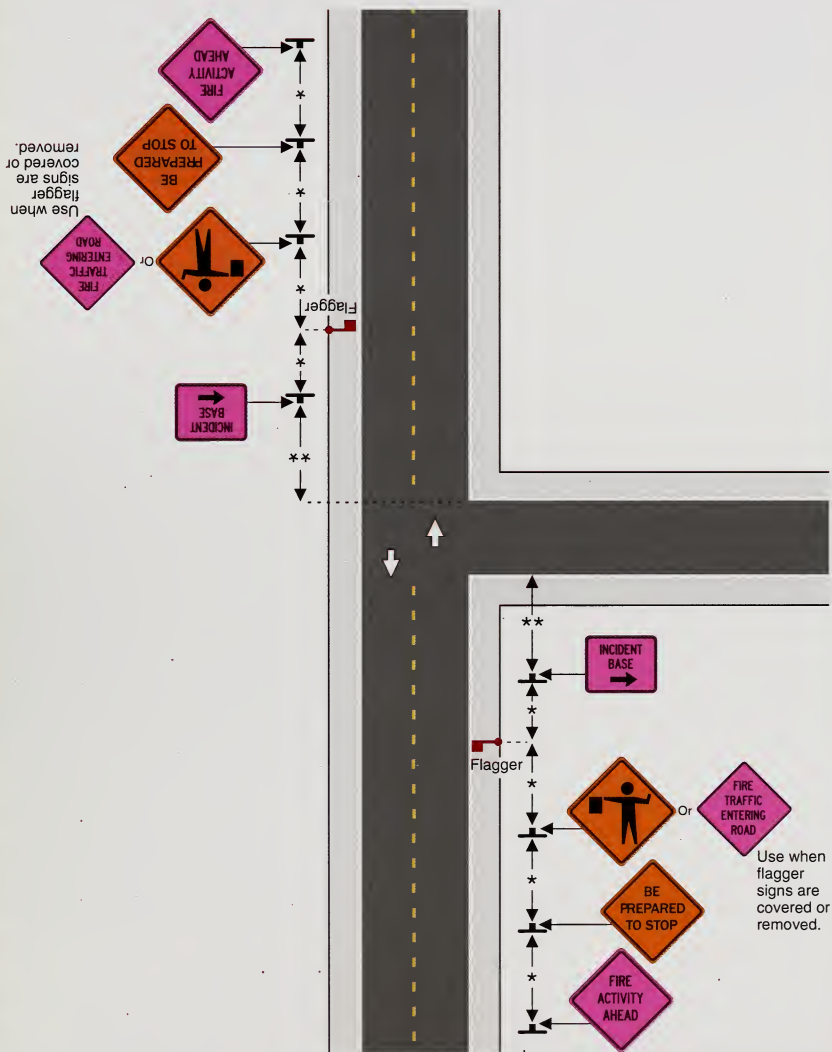
The advance warning sign FIRE ACTIVITY AHEAD and guide signs should be visible at all times.

See pages 22 through 24 for flagger requirements.

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# Intermittent Flagging Operations at Intersections



\* Obtain distance from table 1 (page 6).

\*\* Obtain distance from table 2 (page 7).

# Drop Points

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## Application Notes

DROP POINT signs are guide signs that direct incident personnel to specific destinations where they can drop off or pick up supplies and crews.

Use the single DROP POINT sign for individual drop points. Use the multiple DROP POINT sign to direct traffic to several drop points from a single intersection.

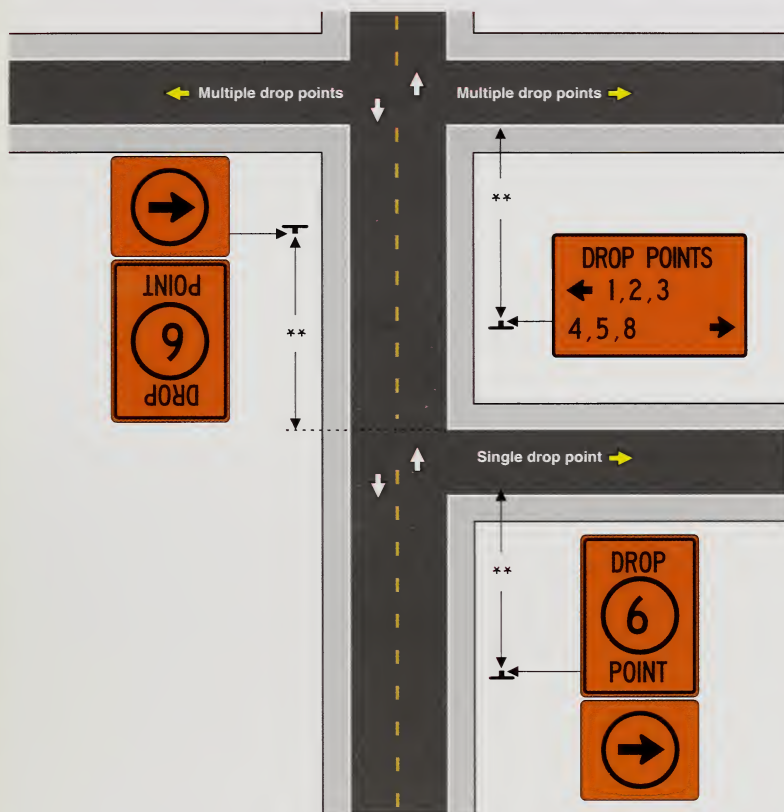
If drop points are accessed only from one direction, signs may be needed only on that side of the roadway.

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## Drop Points



\*\* Obtain distance from table 2 (page 7).

# Staffed Emergency Road Closures

## Application Notes

Official traffic control points are established to stop traffic, limit congestion, expedite emergency traffic, exclude unauthorized vehicles, or protect the public.

Use the TRAFFIC CONTROL POINT sign, in conjunction with a standard STOP sign, to designate an official traffic control point. Install the signs at the point where traffic must stop to be checked. Mount the TRAFFIC CONTROL POINT sign directly below the STOP sign.

Locate the traffic control point so that drivers may safely turn around if they are refused entry. Typically, traffic coming out of the temporary traffic control zone is not stopped. If exit signs are needed, they should match the approach signs.

Park the guard vehicles out of traffic on the right side near the closure. Guards should not cross the open roadway to speak to approaching drivers.

**Do not stand or sit in front of or behind the barricade.**

Place a Type III barricade in the lane where traffic is being stopped. Barricade stripes point to the direction traffic is to pass.

**Do not post notices and other information on the barricade.**

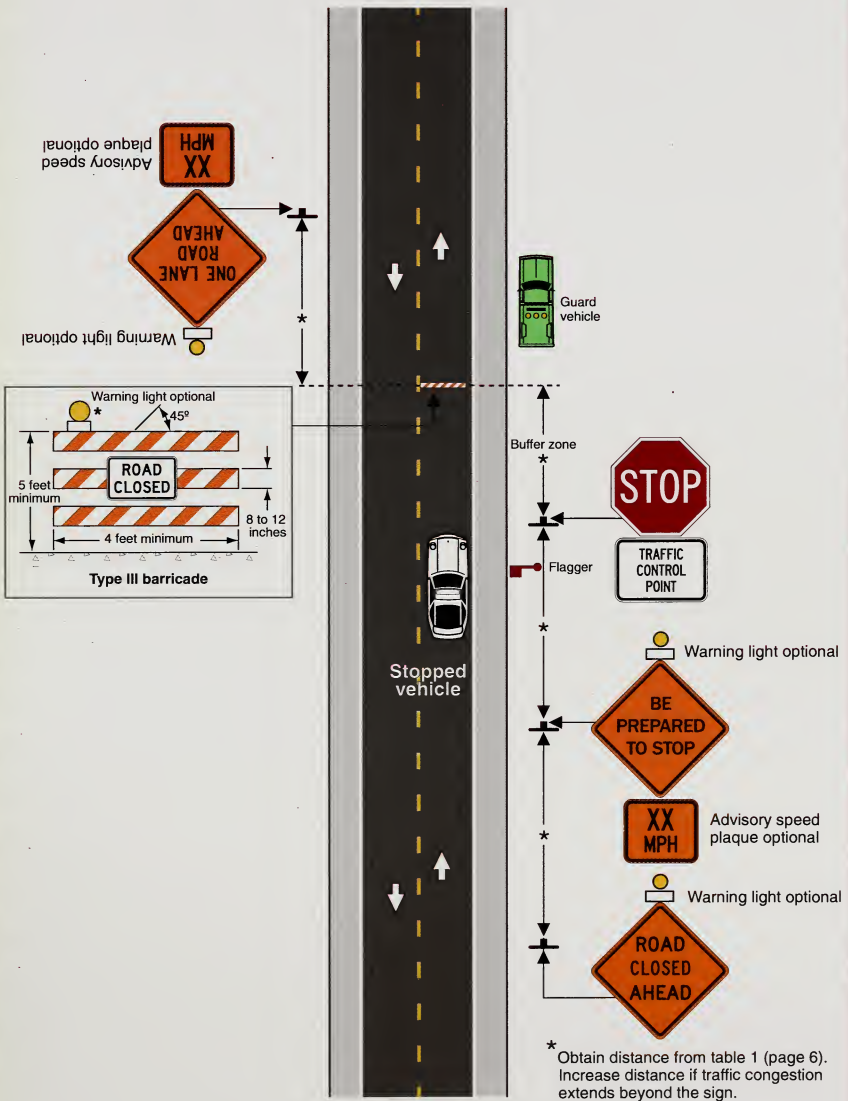
Use appropriate closure signs on the barricade.

See page 3 for Type III barricade requirements.





# Staffed Emergency Road Closures



# Temporary Traffic Control— Flagging

## Flaggers

A flagger must be trained and certified by a State or Federally approved training and certification agency in safe traffic control practices and public contact techniques. The flagger should demonstrate the ability to:

- Receive and communicate specific instructions.
- Move quickly to avoid danger from errant vehicles.
- Control signaling devices to provide clear and positive guidance to approaching drivers.
- Understand and apply safe traffic control practices in stressful or emergency situations.
- Recognize dangerous traffic situations and warn workers quickly enough so they can avoid injury.

The flagger must be clearly visible to approaching traffic. This can be accomplished by wearing high-visibility clothing and staying clear of other workers or devices.

## High-Visibility Clothing

For daytime and nighttime activity, flaggers shall wear safety apparel meeting the requirements of International Safety Equipment Association “American National Standard for High-Visibility Apparel” and labeled as meeting the ANSI 107-1999 standard performance for Class 2 risk exposure. The apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined in the standard. The retroreflective material shall be either orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1,000 feet. The retroreflective safety apparel shall be designed to clearly identify the wearer as a person. For nighttime activity, the flagger should wear safety apparel meeting Class 3 risk exposure.

## Hand-Signaling Devices

The sign paddle bearing the message STOP and SLOW provides road users with more positive guidance than flags and should be the primary hand-signaling device. Flags should be used only in emergencies.

The STOP/SLOW paddle shall have an octagonal shape on a rigid handle. STOP/SLOW paddles shall be at least 18 inches wide with letters at least 6 inches high and should be fabricated from light semirigid material. The background of the STOP face shall be red with white letters and border. The background of the SLOW face shall be orange with black letters and border. When used at night, the STOP/SLOW paddle shall be retroreflective. The STOP/SLOW paddle should be fastened to a pole to allow the flagger to hold the sign in the correct position away from the body.

Flags, when used, shall meet the requirements of MUTCD Section 6E.03. Flaggers shall follow signal procedures in MUTDC Section 6E.04 when signaling with a flag.

## Flagger Stations

Flagger stations shall be located far enough ahead of the workspace so that approaching road users will have enough distance to stop before entering the workspace. Guidelines are shown in table 1 (page 6). The distance shown may be increased for downgrades and other conditions that affect stopping distances.

Except in emergencies, flagger stations shall have advance warning signs to alert road users and shall be illuminated at night.

The flagger should stand either on the shoulder adjacent to the lane being controlled or in the closed lane before stopping road users. A flagger should only stand in the lane being used by moving road users after road users have stopped. The flagger should be clearly visible to the first approaching road user at all times. The flagger also should be visible to other road users. The flagger should be stationed far enough ahead of the workers to warn them (for example, by radio or with audible warning devices such as horns or whistles) of approaching out-of-control vehicles. The flagger should stand alone, never permitting a group of workers to congregate around the flagger station.

At a spot constriction, the flagger may have to take a position on the shoulder opposite the closed section to operate effectively. Use table 1 to determine the visibility distance required from road users approaching the flagger. At spot lane closures where adequate sight distance is available for safely handling traffic, one flagger may be enough.

## Flagging Procedures

The following methods shall be used for signaling with paddles:

- To stop road users, the flagger shall face road users and aim the STOP paddle face toward road users in a stationary position with the arm extended horizontally away from the body. The free arm shall be held with the palm of the hand above shoulder level toward approaching traffic.
- To direct stopped road users to proceed, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body. The flagger shall motion with the free hand for road users to proceed.
- To alert or slow traffic, the flagger shall face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body. To further alert or slow traffic, the flagger should hold the SLOW paddle face toward road users and may motion up and down with the free hand, palm down.

## Communication

When two flaggers are used, they can communicate verbally or visually if they are close enough and visible to each other. One of the flaggers should be designated as the coordinator. Where either end of a one-lane section is not visible from the other end, the flaggers may maintain control using such methods as:

- Radio or field telephone.
- An official car that follows the last road user proceeding through the section.
- A pilot car to guide a queue of vehicles through the temporary traffic control zone or detour. The pilot car shall have a sign (PILOT CAR FOLLOW ME) mounted on the rear of the vehicle.

# Temporary Traffic Control— Flagging

## Preferred Method *Stop/slow paddle*



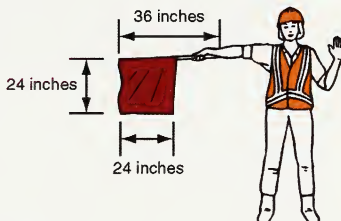
To stop traffic



To let traffic proceed



## Emergency Situations Only *Red flag*



To alert and slow traffic



## Library Card

Trent, Andy; Sheehy, Donna; Cote, Ted. 2005. Incident sign installation guide. Tech. Rep. 0551-2814-MTDC. Missoula, MT: U.S. Department of Agriculture Forest Service, Missoula Technology and Development Center. 24 p.

Explains how guide, warning, and regulatory signs can be used properly at incidents. Incidents may include any number of different situations, such as wildfires, hurricanes, other natural disasters, and other unplanned events such as traffic accidents. Signs that are set up properly at incidents can reduce the risk of traffic accidents. The guide is based on standards established by the *Manual on Uniform Traffic Control Devices* and the *Sign and Poster Guidelines for the Forest Service* (EM-7100-15).

Keywords: flagging, fire fighting, firefighting, incident management, road signs, specifications, standards, traffic, traffic control, traffic safety, wildfire

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